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TAX POLICY

Information on the Research
Tax Credit

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RESEARCH TAX CREDIT

SUMMARY STATEMENT OF
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In 1981 Congress created the research tax credit to enhance the competitive position of the U.S. in the world economy by encouraging the business community to do more research. The credit applies to qualified research spending that exceeds a base amount. The credit's availability will expire in June 1995.

In tax year 1992, corporations earned slightly over \$1.5 billion worth of research credits, most of which was earned by large corporations in the manufacturing sector, particularly those producing chemicals (including drugs), electronic machinery, motor vehicles, and nonelectronic machinery.

GAO makes several points concerning the research tax credit.

- The credit's net benefit to society would ideally be evaluated in terms of the ultimate benefits derived from the additional research that it stimulates and not just on the basis of how much research spending it stimulates for a given revenue cost. However, no one has been able to estimate the credit's net benefit to society. Given the absence of empirical data, GAO has not taken a position as to whether the credit should be made a permanent part of the tax code or allowed to expire.
- The revisions that Congress made to the research credit in 1989 should have increased the amount of research spending stimulated per dollar of revenue cost. But, over time, the fixed base of the credit has the potential to become too generous for some taxpayers, resulting in undue revenue losses, and too restrictive for others, resulting in less overall research stimulated by the credit. If the credit is extended, Congress may want to provide for reviewing this base periodically and adjusting it as needed.
- The research credit has been difficult for IRS to administer, primarily because the definition of qualified research spending was unclear. In 1994, the Department of the Treasury issued final regulations that may resolve this uncertainty. IRS and firms will still have to distinguish innovative from routine research. Innovative research qualifies for the credit; routine research does not.

Mr. Chairman and Members of the Committee:

We are pleased to be here today to provide information on the research tax credit and to discuss several issues that we believe are important to your deliberations on the future of the credit.

In 1981, Congress created the research tax credit to encourage business to do more research. It believed that an increase in research was necessary to enhance the overall competitive position of the U.S. economy. Since its enactment on a temporary basis in 1981, the credit has been extended six times and modified four times. The credit has always been incremental in nature. Taxpayers are to receive a credit only for qualified research spending that exceeds a base amount. The current rate of credit is 20 percent of that incremental amount of spending.

On the basis of our past work and newly available data, we have four major observations to offer:¹

- The research credit is primarily earned by large corporations in the manufacturing sector.

- The credit's net benefit to society would ideally be

¹Preliminary Analysis of the Research and Experimentation Tax Credit, (GAO/GGD-88-98BR, June 1988); The Research Credit has Stimulated Some Additional Research Spending, (GAO/GGD-89-114, Sep. 1989); Pharmaceutical Industry's Use of the Research Tax Credit, (GAO/GGD-94-139, May 1994).

evaluated in terms of the ultimate benefits derived from the additional research that it stimulates and not just on the basis of how much research spending it stimulates for a given revenue cost. However, once the decision has been made to provide some form of credit, the amount of spending stimulated per dollar of revenue cost is a relevant criterion for assessing alternative designs for the credit.

-- The revisions that Congress made in 1989 should have increased the amount of research spending stimulated per dollar of revenue cost. But, over time, the fixed base of the credit has the potential to become too generous for some taxpayers, resulting in undue revenue losses, and too restrictive for others, resulting in less overall research stimulated by the credit. If the credit is extended, Congress may want to provide for reviewing and adjusting this base as needed.

-- The research credit has been difficult for IRS to administer, primarily because the definition of qualified research spending was unclear. In 1994, the Treasury Department issued final regulations that may resolve this uncertainty. However, IRS and firms will still have to distinguish innovative from routine research.

Now I will elaborate on each of these points.

CORPORATIONS USING THE RESEARCH CREDIT

In tax year 1992 corporations earned slightly over \$1.5 billion worth of research credits.² Most was earned by large corporations in the manufacturing sector--74 percent by corporations with assets in excess of \$250 million and 76 percent by manufacturing corporations. Within the manufacturing sector, the four subsectors that earned the most credits were those producing chemicals (including drugs), electronic machinery, motor vehicles, and nonelectronic machinery. (Attached Tables 1 through 3 provide more details.)

The amount of credit earned is not equivalent to the revenue cost of the credit, because not all of the credits earned can be used immediately. The Joint Committee on Taxation has estimated that, if the credit were extended, by fiscal year 1998, its revenue cost would be approximately \$2.2 billion per year.

EVALUATING THE CREDIT

The research credit is basically a transfer of money from all taxpayers to those taxpayers who exceed their base research spending. This transfer is to induce changes in the productive

²These data were extracted from the Internal Revenue Service's Statistics of Income and exclude credits earned by individuals, partnerships, and S corporations.

activities within the economy. It is commonly held that society benefits more from research and development spending than from nonresearch spending. But data to measure such benefits are very limited.

If the activities encouraged by the credit are, in fact, more beneficial to society than activities discouraged by this reallocation of resources, then the credit would be considered sound tax policy. We know of no studies that show whether the credit is better than alternative forms of government incentives at encouraging research. We do know that the more research spending the credit stimulates per dollar of revenue cost, the better the credit would compare to other policies.

As we explain in the next section, the base calculation for the credit has an important effect on the incentive provided for increased research spending. Other factors also affect the incentive. These include the rate at which research expenses reduce tax liability, limits on the amount of general business credits that may be claimed, reductions in research expense deductions by the amount of credit claimed, and the carryover provisions for companies without sufficient tax liability to claim the credit. These factors, which affect individual companies differently, are important in determining the incentive for increased research spending provided by the credit.

ISSUES RELATING TO THE BASE OF THE CREDIT

The rules for determining the base spending amount to be used when calculating the credit have a critical impact on the credit's effect.

To stimulate the most research spending per dollar of tax revenue forgone, the credit should be designed to give a benefit for research spending that firms undertake above and beyond the amount they would have spent in the absence of the credit. Similarly, no reward should be given for research that firms would have undertaken anyway. Unfortunately, it is impossible to determine accurately the amount of qualified research that firms would have undertaken without the credit. When discrepancies exist between this "ideal" base for the credit and whatever base is used in practice, the result is that firms are rewarded either too much or not enough for their spending behavior.

Prior to 1990, the base of the credit was equal to the average of qualified expenditures for the 3 previous tax years or 50 percent of the current year's expenditures, whichever was greater.

Although this base may have been a fairly good approximation of the ideal base, it had a serious flaw. The moving average base established a link between the taxpayer's current spending and future base amounts in a manner that substantially reduced the incentive provided to many companies. Each dollar spent in any

year raised the base by 33 cents in each of the next 3 years, thus reducing the credit available in those years.

In our 1989 study, we estimated that, at the margin, the previous credit provided companies a benefit of 3 to 5 cents per dollar of additional research spending. We further estimated that this incentive stimulated between \$1 billion and \$2.5 billion of additional research spending between 1981 and 1985 at a cost of \$7 billion in tax revenues. Thus, each dollar of taxes forgone stimulated between 15 and 36 cents of research spending.

Although the amount of research spending stimulated by the credit was well below the credit's revenue cost, total benefits could be much higher.

The revision of the credit in 1989 significantly increased the effective incentive of the credit by breaking the link between current spending and future base amounts. For most credit recipients, this new base is related to the ratio of research spending to gross receipts during the period 1984 through 1988. To arrive at the base amount, this ratio or "fixed base percentage," as it is known, is multiplied by the taxpayer's average annual gross receipts for the 4 years preceding the current tax year. (Table 4 provides a sample computation under the new rules).

A concern with the current base is that the spending behavior

that individual firms exhibited from 1984 through 1988 may not be reflective of the spending that those firms would engage in now, if the credit did not exist. The current base is appropriate as long as firms' ratios of spending to gross receipts are fairly constant over time. Our earlier work showed that many firms maintained substantially different growth rates in their spending and sales over extended periods of time. To the extent that taxpayers change their spending behavior over time, the credit computation will be too generous for some taxpayers, resulting in undue revenue losses, and too restrictive for others resulting in less overall research stimulated by the credit. If many corporations fall into either of these categories, there may be a need to adjust the base to ensure that the credit continues to provide an attractive incentive at an acceptable revenue cost.

ADMINISTRATION OF THE RESEARCH CREDIT

In our earlier work, we concluded that the credit was relatively difficult for IRS to administer. This conclusion was based on our survey of IRS revenue agents who audited large companies for tax years 1981 through 1986. The survey found that these IRS revenue agents questioned the credit claimed by 79 percent of the corporations in which the credit was audited, and that 54 percent of the revenue agents found at least one issue or aspect of the credit difficult to audit. Revenue agents most frequently cited four reasons for questioning research expenditures. Rather than

for qualifying, innovative research, revenue agents believed the expenditures were for (1) adapting existing capabilities, (2) routine or cosmetic alterations, (3) overhead and administration, or (4) ordinary testing. In general, most agents found it difficult to distinguish spending for new products or functions from spending that made routine or cosmetic changes.

Our interviews with IRS for our 1994 report indicated that this difficulty remained. IRS officials reported that they were required to make difficult technical judgments in their audits concerning whether research was directed to produce truly innovative products or processes. An IRS official stated that although examination teams often included engineers and other specialists to address technical issues that arose, IRS still had difficulty matching the technical expertise of the companies' specialists.

In our 1989 survey, about one-fifth of the revenue agents said the definition of qualified research was unclear. One reason cited was the lack of final regulations. The succession of proposed regulations issued in 1983, 1989, and 1993 to define qualified research under section 174 of the tax code created uncertainty about the definition of qualified research and contributed to the difficulty in auditing the research credit. All research spending that qualifies for the credit must first qualify under section 174. In 1994, Treasury issued final

regulations that may resolve the uncertainty about the definition of qualified research spending. However, the difficulty of distinguishing innovative from routine research remains.

Audits of the research credit can be burdensome for both IRS and the taxpayer because the audits must determine whether research expenses like wages and supply costs were made in support of research activities that qualify for the credit. The taxpayer is thus required to show that expenses supported qualified research activities. When detailed project accounting does not exist, both IRS and the taxpayer may find it difficult to separate out the cost of personnel employed in specific projects years after the fact. Thus, the costs of administering the credit, according to an IRS official, are substantial for both IRS and the taxpayer.

CONCLUSION

Given the lack of empirical data for evaluating the credit's net benefit to society, we have not taken a position as to whether the research credit should be made a permanent part of the tax code or allowed to expire. We have, however, concluded that, if the Congress decides to extend the credit, it may also want to ensure that the credit continues to provide an attractive incentive to most recipients at an acceptable revenue cost. One way this could be done is by requiring that the base be reviewed

periodically and adjusted as needed.

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That concludes my summary statement. We welcome any questions that you may have.

Table 1: Number of Corporations Earning the Credit and Amount of Credit Earned, by Industry, 1992

Industry	Number of corporations earning the credit	Percent of total	Amount of credit earned (dollars in millions)	Percent of total
Agriculture	96	1	\$4.2	-
Mining	19	-	3.5	-
Construction	46	1	2.3	-
Manufacturing	5,026	65	1,157.7	76
Transportation and public utilities	145	2	98.3	6
Wholesale trade	432	6	25.2	2
Retail trade	98	1	8.0	1
Finance, insurance and real estate	97	1	17.8	1
Services	1,790	23	198.2	13
Total	7,749	100	1,515.4	100

Notes: These data exclude credit recipients that are individuals, partnerships, or S-corporations. The numbers are based on sample data and, consequently, are subject to sampling error. A dash represents less than .5 percent. Totals may not equal the sum of the details due to rounding.

Source: GAO analysis of IRS Statistics of Income data on corporations for tax year 1992.

Table 2: Number of Corporations Earning the Credit and Amount of Credit Earned, by Manufacturing Industry, 1992

Manufacturing industry	Number of corporations earning the credit	Percent of total	Amount of credit earned (dollars in millions)	Percent of total
Food	122	2	14.9	1
Textile	40	1	3.9	-
Lumber	23	-	.5	-
Furniture	30	1	1	-
Paper	38	-	15.5	1
Printing	384	8	8.2	1
Chemicals	519	10	356.7	31
Petroleum refining	26	1	23.9	2
Rubber	146	3	9.2	1
Stone, glass	65	1	6.5	1
Primary metals	44	1	5.1	-
Fabricated metals	296	6	9.6	1
Machinery, except electric	556	11	160.5	14
Electronic machinery	1,545	31	203.2	18
Motor vehicles	43	1	198.4	17
Transport	46	1	12.3	1
Instruments	713	14	97.3	8
Other	391	8	30.9	3
Total	5,026	100	1,157.7	100

Notes: These data exclude credit recipients that are individuals, partnerships, or S-corporations. The numbers are based on sample data and, consequently, are subject to sampling error. A dash represents less than .5 percent. Totals may not equal the sum of the details due to rounding.

Source: GAO analysis of IRS Statistics of Income data on corporations for tax year 1992.

Table 3: Number of Corporations Earning the Credit and Amount of Credit Earned, by Asset Size, 1992

(Dollars in millions)

Asset size class	Number of corporations earning the credit	Percent of total	Amount of credit earned (dollars in millions)	Percent of total
\$0 - less than \$1	2,220	29	\$29.3	2
\$1 - less than \$10.	3,138	40	111.5	7
\$10 - less than \$50	1,146	15	106.5	7
\$50 - less than \$100	323	4	67.7	4
\$100 - less than \$250	303	4	83.4	6
\$250 - less than \$500	170	2	86.8	6
\$500 - less than \$1,000	132	2	87.5	6
Greater than \$1,000	317	4	942.8	62
Total	7,749	100	1,515.4	100

Notes: These data exclude credit recipients that are individuals, partnerships, or S-corporations. The numbers are based on sample data and, consequently, are subject to sampling error. Totals may not equal the sum of the details due to rounding.

Source: GAO analysis of IRS Statistics of Income data on corporations for tax year 1992.

Table 4: Sample Calculation of the R&E Tax Credit for 1990³

Dollars in thousands		
Year	Receipts	Qualified research expenditures
1984	\$150,000	\$25,000
1985	\$300,000	\$45,000
1986	\$400,000	\$30,000
1987	\$350,000	\$35,000
1988	\$450,000	\$50,000
1989	\$500,000	\$55,000
1990	\$650,000	\$73,000

Calculations		
Compute the fixed base percentage		
1. Total the qualified research expenditures for 1984-1988		\$185,000
2. Total the gross receipts for 1984-1988		\$1,650,000
3. Divide qualified research expenditures by gross receipts to determine the fixed-base percentage		11.21%
Compute the base amount for 1990		
1. Calculate the average receipts for the 4 preceding years (1986-1989)		\$425,000
2. Multiply by fixed-base percentage to determine base amount		\$47,643
Compute the tax credit		
1. Take research expenses for 1990 (\$73,000) and subtract base amount (\$47,643) or 50% of 1990's qualified research expenses (\$36,500), whichever is more		\$ 25,357
4. Multiply this amount by 20% to determine the R&E tax credit for 1990		\$5,071

(268690)

³The example is for an established firm. Special rules apply to start-up companies.